

Claims

What is claimed is:

- 5 1. A method of diagnosing an aggressive form of cancer, the method comprising steps of:
- providing a genetic sample from a test sample of a tumor;
- analyzing expression of a set of genes selected from the group consisting of *Wnt5a*, MART-1, pirin, HADHB, CD63, ENDRB, PGAM1, HXB, RXRA, integrin b1, syndecan 4, tropomyosin 1, AXL, EphA2, GAP43, PFKL, synuclein a, annexin A2, CD20, and RAB2;
- 10 and
- identifying the tumor as aggressive or non-aggressive based on the expression pattern of the genes.
- 15 2. The method of claim 1, the method further comprising step of:
- selecting a treatment regimen for an individual with the tumor based on whether the tumor is aggressive or non-aggressive.
3. The method of claim 1, wherein the cancer is malignant melanoma.
- 20 4. A method of diagnosing an aggressive form of malignant melanoma, the method comprising steps of:
- providing a genetic sample from a test sample of a tumor;
- determining expression of *Wnt5a*; and

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identifying the tumor as aggressive or non-aggressive based on the expression of *Wnt5a*.

5. A method of treating a patient diagnosed with malignant melanoma, the method comprising steps of:

providing a patient diagnosed with malignant melanoma; and
administering to patient a therapeutically effective amount of an agent known to inhibit *Wnt5a*.

6. The method of claim 5, wherein the agent reduces the expression of *Wnt5a*.

7. The method of claim 5, wherein the agent is an anti-sense agent directed against *Wnt5a*.

8. The method of claim 5, wherein the agent reduces the activity of WNT5A.

9. The method of claim 5, wherein the agent is administered in combination with current therapy for malignant melanoma.

10. A kit for diagnosing cancer comprising at least a portion of at least one gene selected from the group consisting of *Wnt5a*, MART-1, *pirin*, HADHB, CD63, ENDRB, PGAM1, HXB, RXRA, integrin b1, syndecan 4, tropomyosin 1, AXL, EphA2, GAP43, PFKL, synuclein a, annexin A2, CD20, and RAB2 to be used in determining expression of the gene.

11. The kit of claim 10, wherein the kit comprises a gene chip.

12. The kit of claim 10, comprising at least a portion of *Wnt5a*.

13. The kit of claim 10, further comprising the reagents necessary to isolate and purify mRNA from a cell.

14. A kit for diagnosing cancer comprising antibodies directed against at least one protein encoded by the genes selected from the group consisting of *Wnt5a*, MART-1, pirin, HADHB, CD63, ENDRB, PGAM1, HXB, RXRA, integrin b1, syndecan 4, tropomyosin 1, AXL, EphA2, GAP43, PFKL, synuclein a, annexin A2, CD20, and RAB2 to be used in determining protein level.

15. The kit of claim 14 comprising antibodies directed against WNT5A.

16. A method of screening for agents useful in the treatment of cancer, the method comprising steps of:

providing a cell expressing *Wnt5a*;

providing an agent to be screened;

contacting the cell with the agent; and

detecting a change in expression or activity of *Wnt5a* in the cell.

17. The method of claim 16 wherein the cell is a skin cell.

18. The method of claim 16 wherein the cell is derived from a malignant melanoma.

19. The method of claim 16 wherein the agent is selected from the groups consisting of polynucleotides, proteins, peptides, and small molecules.

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20. The method of claim 16 wherein the step of detecting comprises assessing the cell's ability to digest extracellular matrix.

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